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From Human history, human being always tried to make new products such as fire, mechanics, and planes. Nowadays, people, especially scientists, evolved new food by using genetic engineering technology. In general, scientists change gene in a wide range of food; hence, the new food is produced. This food is called GMO, genetically modified organisms, or GEO, genetically engineered organisms. Due to this kind of food, there is the controversial argument that GM food is harmful to the environment or not. Some research claim this food deteriorates to nature, but others are on opposite side. Although some effects of GM food are negative, GM food mostly has positive influences on our environment.

Some scientists argue that GM food has negative impacts on the environment. First of all, GM foods spread virus on the environment. In the article “Environmental Effects of Genetically Modified Food Crops: Recent Experiences” the author speaks that GM crops which has viruses, have a possibility to spread more viruses (Mellon and Rissler par 14). Moreover, GM foods change another state which causes people and animals to be bad. Specifically, GM crops have a possibility to become weeds which makes negative effects to the environment. Mellon and Rissler say, “First, the engineered crops themselves could become weeds, a broad term that covers plants with undesirable effects” (par 14). One of negative effects of weeds is that this weeds damage to other plants. In other words, by absorbing other plants’ nutrients, weeds can survive. In order to remove the weeds, the farmers use a lot of amounts of pesticide. Accordingly, not only did this pesticide for weeds kill other plants, but this also caused soil to erode.

In addition to spread viruses and to become weeds, GM foods change the amount of regular foods. The study by two authors tells us that the cultivation of the GM rice caused the reduction of rice diversity (Ghosh and Jepson 89). This is because GM rice can damage the regular one by spreading the altered gene through the soil. As the result of this phenomenon, the diversity of regular rice is diminished. Furthermore, there is non- regular herbicide which has bad effects on the soil, for GM crops. From the study by Food and Agriculture Organization of the United Nations, it has been said, “These herbicides are associated with a shift towards less mechanical tillage [one type of the agriculture preparation of the soil] in large-scale arable crops, which reduces primary soil erosion” (19). In fact, the area where non- regular herbicide is used has a big problem to cultivate other plants again because of the fact that the soil needs time to be recovered from the erosion. In the end, this soil is easy to change wasteland by this herbicide. On the other hand, other research showed the evidence about opposite side.

The scientists in the genetic engineering are still doing experiment about this topic, and some of them argue that the GM food is beneficial to solve the problems of our environment. One of big environmental issues is the greenhouse effects which happened by sprays. When farmers distribute the pesticide for protecting crops from harmful insect, the pesticide emits the certain chemical, which generates greenhouse gases, to the air. So far, there is no way to diminish the greenhouse gas emissions; however, GM crops decrease the use of the pesticide. In addition, GM crops reduce the nature footprint with pesticide. According to study, “Since 1996, adoption of biotech crops [GM crops] has contributed to reducing greenhouse gases emissions from agriculture,” says Clapp, “and decreased pesticide spraying” (par 2). This is because GM crops need non-regular herbicides which do not release the source of the chemical substances like SO2. From this result of study, the GM crops have positive effects on the atmosphere environment.

Besides, Another environmental advantage from GM food is that GM foods positively affect to animals. Wild animals gain benefits from GM products. These biotech products, same as GM foods, make up for wild animals fault. One of examples of this case is that GM plants give benefits to animal. Mellon and Rissler say that BT [biotechnology] sunflower give wild less damage from moth- type herbivorous insects (par35). This is because BT gene prevents the harm of this kind of moth insects. In addition, because of this effect, this animal which received BT gene by BT sunflower, become more productive than other animals. This phenomenon assists the maintenance of the number of animals and prevents the imbalance of the environment by keeping food chain.

The prediction of GM food to the environment by scientists is also positive. While developing the GM food, the genetic engineering technology is also improved. Consequently, new skills help the environment to be clean. First of all, GM crops eliminated lead and cadmium which causes the negative consequence of human body and ecosystem, from the environment. If people have the excessive amount of these two chemicals in their bodies, this causes fatal illness like lead poisoning. Thomson, *the author of Seeds For The Future*, points out, “This [removing lead or cadmium by GM plants] process is called phytoremediation. . . for on-site application of transgenic plants the genes will have to be introduced into highly productive plants” (129). Generally, the poplar trees are used for this purpose. Through this process, Not only did GM crops remove lead, but transgenic plants became productive plants. Another GM crops can be used a different way to make clean environment. Thomson mentions that the GM plants can be used as “phytosensors”, for detecting contaminations in the environment (130).

GM foods have benefits and drawbacks to the environment, and this field is still studying by scientists. In order to solve the negative environmental impacts of GM food, scientists can remove the disadvantages aspects of this food to the environment by changing or inserting the gene. As a preliminary scientist in this field, I am strongly convincing that GM food will be adjusted by the great efforts of the scientists.

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